

I. CASE OF INGUINO-LABIAL HERNIA; OVARY,  
FALLOPIAN TUBE, AND CORNU OF UTERUS  
IN SAC. II. CASE OF HYDRONEPHROSIS,  
OF THIRTY YEARS' DURATION, WITH  
CALCIFICATION OF THE INNER  
PORTION OF THE WALL  
OF THE CYST.

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CASE I. *Inguino-labial Hernia; Ovary, Fallopian Tube, and Cornu of Uterus in Sac.*—Mrs. S., American ; married ; aged forty years. Family history negative. Was always well up to six years of age. One day when she was six years old, while “see-sawing” with a companion, the playmate jumped off from her end of the board while Mrs. S. was high in the air, and she came suddenly to the ground, and in falling, in some way, she does not know exactly how,—*i.e.*, whether by a direct blow or by some wrench or strain,—she injured her left groin. At first it was not known just how she was injured, but within two or three days a lump was discovered in the left groin, which patient states positively had never been there before, basing this upon her mother’s statements subsequently made to her. This lump was promptly recognized as a hernia, and a truss was soon applied. This she wore more or less constantly during childhood. She suffered very little inconvenience from the hernia while a child, and says she was a great romp in her play and very active physically. It was not till about the time of puberty that the swelling began to be troublesome. She then had some pain and tenderness in the groin. The first menstruation occurred at the age of fourteen, and previous to the past five months has always been regular and normal, lasting three days.

She thinks that at times the lump became larger and more

sensitive just before menstrual periods, but this has not been so of late years. It was at all times more or less sensitive to moderate pressure, and previous to the past seven or eight years she has noticed that pressure immediately after the menstrual period was capable of exciting a feeling of sexual desire. Recently this symptom has been absent.

For many years the hernia was, she believes, wholly reducible, and she could wear a truss with comfort; but for eight or ten years past no truss could be endured for many hours at a time, and she was about as uncomfortable with one as without. It has never been strangulated, though she has long been apprehensive that it would be. If she accidentally struck it against any hard substance, as the edge of a table, she would almost faint at times, though she did not feel nausea or the peculiar sickening pain described as caused by pressure on an ovary. She has always suffered much from a constant dragging pain and discomfort, and at times has had attacks of severe pain in the hernia. This has made her very nervous, though, in spite of this annoyance, she has always worked hard in the care of her household, and has never considered herself an invalid.

She was first married at the age of nineteen, and at twenty gave birth to a seven months' female child, weighing only three and three-quarters pounds. At the age of twenty-two she also bore a full-term male child, which weighed six pounds. Both children are now living and in good health.

The course of both pregnancies was perfectly normal, as were also the labors, excepting for the fact that she suffered with each labor-pain so intensely in the hernia that it entirely overshadowed the pains of labor proper, which she hardly felt at all in the usual situations of the back, abdomen, and thighs; and during each labor-pain she was obliged to have the nurse hold and support with her hands the hernia, instead of her back.

Her husband died of phthisis when she was twenty-five years of age. At the age of twenty-nine she contracted a second marriage, and within a few months became pregnant and had an instrumentally-induced abortion at six or eight weeks. This was the first and only abortion or miscarriage she has ever had. She has never been pregnant since, but at times has thought she was, because she had feelings of slight nausea, though she had not missed a menstrual period previous to five months ago.

She had no menstruation in July, 1894; in August and Septem-

ber they were very slight; in October one about as usual; none in November; and only a slight one in December, on the 13th, which was the last one prior to operation.

The only previous treatment has been the wearing of various forms of convex-pad trusses, but the pressure of a truss had long been causing more and more discomfort, and had finally become almost unbearable, so that she was at least no more uncomfortable without one than with, and was anxious to try any means that offered a prospect of relief.

She first came to me on December 21, 1894, wearing an ordinary, convex, water-pad truss.

She is a well-developed, fairly-well nourished woman, apparently in good general health, aside from a considerable degree of nervous irritability, which she ascribes solely to the long-continued annoyance and discomfort of a left inguino-labial hernia, but which, I think, may be due, in part at least, to the approaching climacteric.

In the left labium was a hernial mass of about the size of a small orange, extending upward through the external ring into the inguinal canal, to which straining and coughing imparted a distinct impulse. It was reducible in part only, perhaps half or two-thirds of the mass going upward into the canal or abdomen, while the remainder would not pass beyond the external ring, apparently being either too bulky to enter it or being held by adhesions. To percussion the whole mass was dull, at no point giving any sound of intestinal resonance. The peculiar feature was, however, the form and feel of the extruded substance. In the mass as a whole were two perfectly distinct and separate masses, each of about the size of a large English walnut, and quite hard and firm to palpation. Each was movable within narrow limits independently of the other, but both were evidently loosely connected by some softer tissue. The feel of these masses, but one of them especially, suggested at once to my mind the possibility of a herniated ovary, and I proceeded to attempt by pressure of each in turn to elicit some trace of the peculiar sickening pain or nausea that ovarian pressure causes, but with perfectly negative results. The presence of two such masses also tended to disarm my suspicion and lead me to believe that I had to deal rather with an old, adherent, omental hernia with localized hypertrophies than with so rare a condition as a herniated ovary. Taxis appeared to reduce nearly all of the mass, except these two hard portions which remained external to the external ring and had been simply held against it by the pad of the truss.

In the vaginal examination I was unable by moving the uterus to impart any motion to the hernial mass, though the uterus was quite freely movable, and this again misled me as being additional evidence of some value against its being connected through its ligaments with an ovary, which constituted a portion of the herniated structures. One point, the significance of which I did not at that time, however, grasp, was brought out in the vaginal examination, and that was that the uterus was very markedly inclined to the right, at an angle of about forty-five degrees with the axis of the pelvic canal, the fundus lying against the right side of the brim of the true pelvis, with the canal straight and three and one-quarter inches in length.

Under these conditions there was obviously but one thing to do, and that was to advise a radical operation in the hope, primarily, of obtaining a permanent cure of the hernia, or at least, if that failed, of transforming an irreducible, adherent hernia into a reducible one, for which a truss could be worn with safety and comfort. The only alternative was to have her wear a specially fitted concave pad to hold the irreducible part of the mass against the region of the external ring without exerting injurious pressure upon it. The trusses she had been wearing with the ordinary convex pads were undoubtedly doing her positive harm.

She had had enough of trusses, and eagerly chose the operation. Accordingly she was at once prepared in the usual way for an aseptic abdominal operation, and on December 23, 1894, I operated, expecting to find only an ordinary omental hernia with adhesions, and with only a faint expectation of coming upon an ovary.

The usual incision exposed the sac, which was attached over most of its surface to the surrounding subcutaneous tissues by moderately strong adhesions. These were freed on all sides by blunt dissection as far as the external abdominal ring. The whole of the inguinal canal was now laid open, and the sac freed to a point just within the internal ring. The sac was next opened, and the following puzzling condition of affairs was revealed: A cystic ovary attached by a ligamentous band to a pale-pink, apparently solid mass of tissue; a Fallopian tube with free fimbriated extremity, with its proximal end attached to the same pale-pink mass; a broad, peritoneum-covered mass with two free margins on one side, along one of which ran the Fallopian tube, and along the other the ovarian ligament with its attached ovary, evidently a broad ligament with bifid upper edge; and finally the pinkish mass of tissue, in which the ovarian ligament

and Fallopian tube were lost, situated to the inner side of all the other structures, and having running from it, in the layers of what appeared to be broad ligaments, a flattened, thickened cord or band, about half an inch wide, which disappeared with the broad ligament in the abdominal cavity.

There was no intestine or omentum present. The two small, hard masses previously made out were now exposed to view. One was plainly the ovary; the other the pink solid mass of tissue; but what was this mass anatomically? I at once concluded that it was probably some portion of uterine tissue, either supplementary to the true uterus or an atrophied horn of a uterus bicornis, being influenced thereto, first, by the fact of its appearance and feel, which were those of uterine tissue; second, by the fact that the ovarian ligament and Fallopian tube, which were both of normal length, apparently terminated in it; and third, by the fact before ascertained, but not appreciated, that the true uterus had a very markedly right-sided inclination. The possibility of its being a diverticulum of the bladder also occurred to me, and I determined to cautiously incise the mass before ligating the pedicle. Accordingly, I carefully, by successive slight incisions with my scalpel, cut entirely through the centre of the mass without finding any trace of a cavity. It was solid and apparently muscular throughout. I now felt safe in ligating the pedicle, which was done by pulling it down and transfixing as high up within the internal ring as possible with a double-threaded ligature-carrier, armed with heavy chromicized catgut, and tying it double with interlocking ligatures. I then cut off the mass about one-third of an inch beyond the site of ligation, and dropped the stump into the abdomen; after section I found that the thickened band or cord extending inward from the mass was also perfectly solid, without any trace of a cavity.

All of the sac not adherent to the mass and previously removed with it was excised next. No intestine was seen during the operation, and only one very small mass of omentum showed itself at the internal ring after the mass and its sac had been removed. This was pushed back and the peritoneal opening closed with two fine catgut sutures. The cut edges of the inguinal canal were united by five buried, silk-worm-gut, Halsted, mattress sutures. The resulting everted edges were then overcast by a continuous suture of strong catgut, and finally the skin and subcutaneous tissue were united by continuous catgut suture, leaving only the lower angle of the wound unclosed for one-

fourth of an inch, with three or four strands of catgut in it for drainage. Aseptic dressing of sterilized gauze was applied. Operation occupied one hour, and was conducted aseptically throughout.

The tissues removed presented the following appearances: As a whole, they consisted of a broad sheet of peritoneum-covered tissue, about five and a half by two and a half inches in size, and evidently represented a more or less distorted broad ligament. At the upper and inner portion was a thickened, oval, solid, fleshy mass, apparently muscular in structure, which measured one and one-quarter inches in its longest diameter. Directly continuous with this mass, and running from it to the line of section in a downward and inward direction, was a thickened, solid, cord-like band, of similar character to the mass itself, which measured two inches in length and one-half inch in breadth. From the outer end of the fleshy mass extended in a separate peritoneal fold a narrow, cord-like structure, one inch long, having attached to its outer end an ovary, evidently the ovarian ligament. The ovary was two inches long, and had projecting from its outer end a dark-colored cyst of about the size of a small marble, and several smaller cysts, varying in size from a buck-shot to a large pea, could be either seen projecting from its surface or felt embedded in it. Incision of the largest cyst evacuated about a drachm of thin, port-wine-colored fluid, and showed that, while the projecting portion of the cyst was thin-walled, the inner part had a thick wall of yellowish color and irregular outline that strongly resembled a corpus luteum. Several of the smaller cysts which were incised contained only a clear fluid.

The Fallopian tube was attached to the fleshy mass, close to and anterior to the attachment of the ovarian ligament, but was contained in a separate fold of the broad ligament, in which it extended outward and downward in a slightly convoluted course for a distance of five inches, terminating in a free fimbriated opening, which admitted a probe for four inches.

Along the outer side of the posterior surface of the thickened, solid, cord-like band, lying close to and parallel with it, was a small, cord-like band of tissue, one and a half inches long and three-sixteenths of an inch wide, which was attached to the solid fleshy mass, just posterior to the attachment of the ovarian ligament, and extended downward and inward in the tissues of the broad ligament, becoming less and less distinct, and finally, at a distance of one and a half inches from its origin, no longer traceable. This apparently repre-

sented the remains of the round ligament, but it was much less distinctly characterized than either the ovarian ligament or Fallopian tube.

There was on the posterior surface of the junction of the oval, solid, fleshy mass, with the solid, cord-like, thickened band extending from it, a solid excrescence of about the size of a split-pea, which suggested the possibility of a beginning, tiny, subperitoneal fibromyoma. There were also two small cysts about the size of small peas in the substance of the broad ligament, close to the fimbriated end of the Fallopian tube.

In the line of section of the broad ligament there showed the cut ends of two groups of vessels; one group of two or three lying just to the outer edge of the thickened, solid, cord-like band which extended inward from the fleshy mass, and running with what appeared to be the remains of the round ligament; and the other group of four or five near the outer edge of the broad ligament just internal to the fimbriated extremity of the Fallopian tube.

The mode of origin of the ligaments from the oval, solid, fleshy mass was peculiar in that the ovarian ligament was attached between the Fallopian tube and round ligament, and was supported in a distinct fold of peritoneum; and the Fallopian tube was the most anterior and was also supported in a separate fold of broad ligament, while the round ligament, instead of being as usual the most anterior, was posterior to both.

The report of the histological examination by the pathologist, Dr. W. N. Belcher, of Brooklyn, N. Y., was as follows:

"The mass consists of an ovary and Fallopian tube, presenting nearly the normal relations, together with considerable fibrous, membranous tissue and an elongated mass of reddish-gray tissue beginning at the proximal end of the Fallopian tube and closely resembling muscle tissue. Under the microscope, this tissue is found to consist of smooth muscle-fibres arranged in a manner suggesting uterine tissue. The relations of the specimen are lost to such a degree that it cannot be determined whether or not a uterine canal is present. The normal histological appearance of uterine mucosa was not demonstrated. From these findings it would seem likely that a portion of a deformed or distorted uterus, as well as the ovary and tube, became included in the hernial tumor."

The patient rallied well from the anæsthetic, and suffered no shock. The next day a slight bloody discharge from vagina appeared

and continued for a day or two. The highest point reached by the temperature was  $100.5^{\circ}$  F. on the second, third, and fourth days, after which it remained between  $99^{\circ}$  and  $100^{\circ}$  F. for three days, and subsequently continued between  $98^{\circ}$  and  $99^{\circ}$  F.

The pulse never rose above 76, but continued throughout convalescence between 70 and 76. The wound healed *per primam*, and the patient made an uneventful and uninterrupted recovery. She was kept in bed for three weeks, and then allowed to walk about, wearing an abdominal swathe. Normal menstruation of three days began January 29, 1895. She had from the first complete relief from all dragging pain and discomfort; and now, seven weeks after operation, states that she feels better in every way than she ever has before, since her childhood.

CASE II. *Hydronephrosis with Calcification of Cyst-wall.*—J. B., male; aged thirty-nine years; Irish-American; married. Family history negative. Personal history: Was always well up to eight years of age. When eight years old he was riding in the front end of a heavy, four-wheeled ox-wagon, which was empty except for five or six children, and fell to the ground, a distance of about three feet, both wheels of one side of the wagon passing squarely across the lower part of his abdomen, while he was lying on his back. He was unconscious for a few minutes, and then got up alone, and with a hand on the shoulder of another boy walked home, a distance of about half a mile. He stayed in bed for two or three hours, and then got up and played about as usual, wearing a broad bandage about the abdomen for a day or two. He passed no bloody urine, and had no bloody discharge from any outlet at the time or subsequently. No doctor was called to see him, and no evident trouble followed, and he went to school the next day as usual, and continued to do so afterwards. Nothing unusual was noticed for about a year, and then he accidentally discovered in the right iliac region, by pressing with the hand into the abdomen, a hard lump of about the size of a hen's egg, which did not change its size or disappear on change of position, nor was it affected by pressure, coughing, or straining. Then for the first time a doctor was consulted, who ordered a flannel bandage worn about the abdomen and prescribed a liniment. He wore a red flannel bandage for about six years, during which time the lump remained about the same, neither disappearing nor increasing much in size.

When fifteen years old, he went to work in an iron rolling-mill,

and had to do pretty heavy work ; after eight or ten months at this occupation, he noticed that the lump was beginning to get a little larger, but experienced no pain or inconvenience from it.

When eighteen years old, varicose veins appeared in the right leg and thigh, after an attack of swelling and oedema of the whole leg, which developed suddenly, and without obvious cause. He continued working in rolling-mills for eight years, during which time the lump gradually, but steadily, increased in size, always having a hard feel, until finally it projected markedly above the right haunch-bone and towards the right side, and then began, from its size, to inconvenience him about his work, but caused no pain.

When he was twenty-three years old, he fell while working in a rolling-mill, and struck in a sitting posture, shaking up the swelling, and causing some discomfort in it ; twelve hours after the accident he called a doctor, who tapped the swelling with a large trocar, and obtained from it a wooden water-bucket full of clear, yellow fluid, which weighed thirty pounds, and had floating on its surface a glistening scum, which appeared to be oily.

The swelling entirely disappeared after the tapping, and patient could feel no trace of it for the next two or three years. A week after the operation he returned to work in the mill, and worked at this trade for a year longer. He next worked in a bake-shop for six months, and then went to work as a freight-brakeman, and continued this for six years, until he lost his left arm at the shoulder-joint, in a railway accident. For the past eight years he has acted as a "caller" for railway-train crews. Two or three years after the tapping the swelling gradually returned, and continued to slowly and painlessly increase in size for eleven or twelve years ; but during the past two years it has apparently remained stationary.

In March, 1894, a hydrocele of the right tunica vaginalis appeared, and since May 8, 1894, he has had pain in the right sacroiliac region, which has been gradually growing more severe, and has required opiates to relieve it.

I first saw the patient on April 3, 1894 ; he came to me complaining of dyspepsia, but did not mention his tumor ; the dyspeptic symptoms were relieved in a few days by simple treatment. He again came to me on June 3, 1894, complaining of a dragging pain in the right inguinal and lumbar regions, and said he had a right-sided hydrocele ; in examining this, I first learned of his abdominal tumor, which then presented the following appearance :

In the right iliac region was an irregular, nodular, hard mass, feeling as hard as cartilage, of about the size of a man's fist; directly continuous with this mass, and lying between the crest of the right ilium and the lower borders of the right ribs, filling the whole of the right lumbar region, and extending to the left of the median line in front, was a fluctuating swelling; for three or four inches below the margins of the right ribs in front was a mass the size of a man's hand, which felt as hard as bone, and appeared to have thickened, bony ridges, lying parallel with the long axis of the body. No fluctuation could be detected through this part of the tumor, though it was directly continuous with the fluctuating part below. Its upper portion could be followed up behind the ribs for about three-quarters of an inch, but no sulcus separating it from the liver could be found. The upper limits of percussion dulness of the liver were normal; the resonance over the whole of the tumor was flat, except at its upper and inner portion, and along its inner margin, where intestinal resonance existed. The tumor moved only very slightly on deep inspiration, and was evidently fixed by strong adhesions to all surrounding structures.

All the superficial veins of the right leg and thigh, and those of the right inguinal and gluteal regions were enormously dilated, and tortuous; a few moderately dilated veins existed over the right side of the body, in the axillary line; a large hydrocele of the right tunica vaginalis was also present. No enlarged lymphatic glands could be found in any part of the body. The left arm had been amputated at the shoulder-joint, for a railway injury eight years ago, and there was a sensitive neuroma in the stump.

The patient was slightly built, poorly nourished, and generally below par, physically. The urine was normal in amount, and specific gravity, and contained no albumen or pathological sediment. The heart and lungs showed no evidence of disease. He attributed his pain in the right inguinal region, and a dull, aching pain in the right sacro-iliac region, to the presence of the hydrocele, and had come to me to have that treated. He was told that the hydrocele and the pain were probably results of the tumor pressure, and that he could not expect much relief from treating the hydrocele alone; but at this time he refused to have anything more done, and on June 6 I tapped the hydrocele and evacuated eight ounces of clear, serous fluid, and injected eighty minims of 95 per cent, carbolic acid. This slightly relieved him of the dragging inguinal pain, but the pain in the right sacro-iliac region continued, and became gradually more severe, until

on June 12 he consented to exploratory aspiration, and I withdrew from the most prominent portion of the fluctuating part of the tumor, about two inches inside the right anterior superior spine of the ilium, eight ounces of thin fluid, of the color of black coffee, but in thin layers, by transmitted light, of the color of port wine. This was all that would run through the aspirating needle. Even this small amount lessened the pressure enough to give him a moderate amount of relief from his pain. This fluid was odorless, of neutral reaction, specific gravity 102 $\frac{1}{3}$ , and contained enough albumen to completely solidify on boiling in a test-tube, which was inverted without spilling a drop. Microscopically, I found only decolorized blood-disks, leucocytes, and haematin crystals in groups.

After a few days, the pain became as bad as before, and the patient made up his mind to submit to radical operation for removal of as much of the growth as should be found practicable.

Accordingly, after the usual preparations for an aseptic laparotomy, on June 29 I operated by making a two-inch incision in the right iliac region down to the cyst-wall; on opening the peritoneum, I found the great omentum firmly adherent over the cyst; after tearing through this, and exposing the cyst-wall, I introduced the same aspirating trocar that I had used before, and withdrew through it, forty-six ounces of fluid, which weighed three pounds, and had the same appearance and characteristics as that before withdrawn. After this had ceased to flow, I incised the sac-wall for about one and a half inches, cutting with difficulty through a dense, gritty, calcareous tissue, caught the edges of the incised cyst in clamps, and sutured it by a continuous silk suture all around to the cutaneous incision. More fluid of the same kind as that which had been removed by aspiration was evacuated, and upon introducing the finger I found a large quantity of soft, pultaceous material, and the cavity everywhere lined with an apparently rigid, limiting, calcareous wall. I next turned the patient on his left side, and made a three-inch, oblique, lumbar incision, parallel to the last rib and half an inch below it, and came down upon a calcareous surface, too hard for the knife to cut. I broke and forced an opening through this by a blunt instrument, introduced through the abdominal opening, and breaking and twisting and cutting with strong scissors; finally removed several plates of an apparently bony material, about one-sixteenth of an inch in thickness, thus making an opening large enough to permit the introduction of three fingers, and found that they entered a cavity, everywhere lined

by solid, rigid, bony walls, and filled with soft, reddish, pultaceous material, looking more like raw sausage-meat than anything else. This I then shovelled out, using a Hunter vaginal depressor, in exactly the same manner that one would use a spoon to remove the dressing from a stuffed fowl, and without any more difficulty, as it had no connection with the walls of the cyst, but lay loosely in its cavity. The more I dug out the more there seemed to be; my depressor, which was eight and three-quarters inches long, hardly reached the limiting wall in some directions; but finally I had removed, in this way, a quantity that measured over a quart, and weighed three pounds, after straining it from the fluid contents, which came with it; this additional fluid measured thirty-eight ounces, and weighed two pounds and six ounces.

I then had the following remarkable condition: An enormous cavity, with dense stony walls in all directions, which did not collapse, but maintained nearly the original shape and size of the tumor, and gave out a ringing sound when tapped by an instrument. The space normally occupied by the right kidney contained nothing, and no trace of the kidney could be found by three fingers pushed up to the diaphragm through the lumbar incision, or by an exploring instrument passed throughout the entire cavity.

What, from external examination, had appeared to be in part a solid and in part a cystic tumor was, in reality, one large cyst, with its walls stiffened throughout by a deposit of calcareous material of varying thickness and density. Both the lower, nodular part of the tumor, with the feeling of enchondroma, and the upper, bony feeling part, were really hollow, with an extra thick deposit of the calcareous material in their walls, and both were filled with the tightly-packed, soft, pultaceous material of the cyst.

Removal of the cyst-wall was out of the question, for it was firmly bound by strong adhesions to all its surroundings; no attempt to excise it was made. After removing all of the contents that I could, by shovelling it out with my depressor, I flushed the cavity repeatedly, with Thiersch's solution, using several gallons; then stitched in the lumbar incision two large, rubber drainage-tubes, and applied an antiseptic dressing.

The weight of the contents of the cyst, removed at the operation, was eight pounds and six ounces, of which three pounds was soft solid and five pounds and six ounces fluid; these together measured about seven and a half pints, the solid measuring over two pints, and

the liquid five pints and four ounces. To this should be added the eight ounces of fluid first removed by aspiration, which would make the total contents of the cyst eight pints, weighing nine pounds. The time of the operation was a little over an hour; there was practically no loss of blood, and not one ligature was used throughout the entire operation, the only bleeding being from small vessels in the external soft tissues, which were easily controlled by clamp pressure. The patient suffered no shock, and rallied well from the anaesthetic; he had complete relief from his old pain from the time of his recovery from ether. The highest point reached by the temperature was 104° F., on the evening of the fifth day; on the sixth it dropped to 100° F., and afterwards ranged between 99° and 102° F. (Before operation the temperature had been running from 99° to 101° F.) The highest pulse-rate was 104 on the evening of the fifth day, after which it dropped to 80, and continued between 76 and 86. (The sutures were removed on the morning of the fifth day, and at that time the temperature was 101.6° F., and the pulse 96.) The cyst cavity was washed out every two or three days at first, with a 3-per-cent. solution of dioxide of hydrogen, and afterwards with a 1 to 10,000 solution of bichloride and Thiersch's solution. The anterior opening was allowed to contract and close as rapidly as it could, but the posterior one was kept freely open by large, rubber drainage-tubes.

The patient began to improve from the first, and gained color and flesh, and in ten days was sitting up in bed, and in two weeks was out in a chair. The quantity and specific gravity of his urine continued about the same as before operation, averaging about thirty ounces in twenty-four hours, with an average specific gravity of 1022; but two or three days after operation, I found a slight trace of albumen present, and this persisted. (Before operation I had not found albumen, though urine had been frequently examined for it.)

The improvement continued for the first four or five weeks, the cyst gradually, but slowly, shrinking and collapsing, and occasionally exfoliating small portions of its calcareous lining, which were washed out with the irrigating fluids. Then the patient began to fail, losing appetite and strength, and emaciating rapidly.

He soon became too weak to leave his bed, and would probably ultimately have died of exhaustion, if a sudden haemorrhage into the cyst cavity had not carried him off in less than ten minutes, on August 22, just eight weeks after the operation. There had been, for a week or two before, slight bleeding, when the cavity was irrigated;

and the fatal haemorrhage occurred immediately after washing out the cavity.

The autopsy, five hours after death, showed the following condition: The cyst was everywhere densely adherent to its surrounding structures, including diaphragm, great omentum, cæcum, ascending and transverse colon, aorta, and right iliac vessels. The cæcum was found adherent to the anterior cyst-wall immediately behind the navel, with the appendix vermiformis adherent, and extending straight down from it behind the linea alba. So intimate were its connections that it took me nearly half an hour of careful dissection to remove it entire.

When removed, it had the general shape of a kidney; it was eleven inches long and six inches broad, with walls half an inch thick, the outer portion fibrous, but the inner surface made up of calcareous material, varying from one-thirty-second to one-sixteenth of an inch in thickness. Its cavity contained a double handful of fresh coagula, and some loosened fragments of the calcareous inner wall. Patches of granulations protruded from its inner surface, at many points between the calcareous plates; its cavity would not contain more than two pints (estimated), whereas it did contain, at the time of operation, eight weeks before, seven and a half pints of fluid and solid material, thus indicating a considerable progress towards obliteration. The empty cyst weighed four and a half pounds, making the total weight of the tumor thirteen and a half pounds.

The left kidney, ureter, and bladder were removed together; the kidney appeared, from external examination, to be healthy, but was much enlarged, being five and a half inches long, three inches broad, and one and three-quarters inches thick; it weighed twelve ounces,—about twice the weight of an average kidney.

There were no enlarged lymphatic glands, internal or superficial.

The post-mortem specimens, together with portions of the fluid and solid contents, removed at the operation, were sent to the Philadelphia Pathological Society, and examined chemically and microscopically by its committee on morbid growths, to whose chairman, Dr. Joseph McFarland, I am indebted for the following report:

*Report of Pathologist.*—The case is one of hydronephrosis from an undiscoverable and long standing obstruction of the ureter. In the course of time the various trauma to which the part has been subjected, as well as the constantly increasing size of the tumor, have caused the transformation of the distended kidney into a large con-

nective-tissue sac in the most likely parts of which the microscope failed to show a trace of renal tissue. The ureter had been incorporated in the general mass, and, doubtless, long since disappeared.

The interior of the cyst was filled with a turbid fluid, which, however, had a clear straw-color and albuminous nature after depositing a copious precipitate of amorphous salts, cholesterine, and fat-cells and droplets.

The walls of the cyst, which were not very thick, were lined with immense plates of mineral matter, which proved to be phosphate and chloride of calcium when subjected to chemical analysis. In all probability the salts thus deposited were from the stagnant urine which continued to be secreted and reabsorbed long after the ureter was occluded. The process of calcareous infiltration, which is generally observed in morbid processes, differs from this in that the lime salts are deposited in avascular areas from the insufficient oxygen in the body juices. The lime salt, generally met in these cases, is the carbonate, which, of course, is easily recognized with hydrochloric acid.

From the description already given it will be evident that the case is the result of a simple mechanical process and is entirely without malignancy.

It was impracticable to study the condition of the granulations, the possible sources of haemorrhage. The interior of the cyst was examined very carefully for any gaping vessel, but none could be found. Many such might open in the crevices among the mineral plates, however, and escape detection. It seems most likely that the evacuation of the contents and partial collapse which followed caused some of the sharp edges of the plates to press upon the softer tissue and originate an ulceration which penetrated a good-sized vessel.

The kidney of the other side was hypertrophied from the extra amount of work thrown upon it during all the years since the origin of the disease, and was in an early stage of chronic parenchymatous nephritis.